foregoing description and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

WHAT IS CLAIMED IS:

1. A method for detecting a defect, comprising the steps of:

obtaining an image signal of a sample by imaging said sample through an optical system;

adjusting optical conditions of said optical system so as to decrease a difference of contrast or contrast of a pattern in the image signal among segments corresponding to a plurality of regions on said sample;

obtaining the image signal of said sample under the adjusted optical conditions by imaging said sample through said optical system having the adjusted optical conditions; and

detecting a defect of said sample by processing the image signal of the sample under said adjusted optical conditions.

2. A method for detecting a defect, comprising the steps of:

obtaining an image signal of a sample by illuminating and imaging said sample;

adjusting a transmission ratio of 0-th order diffracted light included in entire light generated by said illumination and reflected from said sample so as to decrease a difference of contrast or contrast of a pattern in the image signal among segments corresponding to a plurality of regions on said sample;

obtaining the image signal of said sample with the adjusted transmission ratio of said 0-th order diffracted light by imaging said sample under the conditions in that the transmission ratio of said 0-th order diffracted light has been adjusted; and

detecting defects of said sample by processing the image signal of said sample under the adjusted transmission ratio of said 0-th order diffracted light.

3. A method for detecting a defect according to claim 2, wherein said step of adjusting the transmission ratio of said 0-th order diffracted light is performed by utilizing a polarization difference between the 0-th order diffracted light and higher order diffracted light.

4. A method for detecting a defect according to claim 2, wherein said step of adjusting the transmission ratio of said 0-th order diffracted light is performed by utilizing a spatial filter that is positioned on or in the neighborhood of a Fourier transform plane of said sample

and that reduces the transmission ratio of the 0-th order diffracted light.

5. A method for detecting a defect, comprising the steps of:

illuminating a sample;

obtaining a plurality of images having different transmission ratios of 0-th order diffracted light by changing the transmission ratio of the 0-th order light included in entire light generated by said illumination and reflected from said sample and imaging said sample;

determining conditions for the transmission ratio of the 0-th order diffracted light on which defect detection sensitivity is increased by using the plurality of images having the different transmission ratios of said 0-th order diffracted light;

setting the transmission ratio of the 0-th order diffracted light included in the entire light reflected from said sample to said determined conditions for the transmission ratio;

obtaining the image by imaging said sample under said determined conditions for said transmission ratio of said 0-th order diffracted light; and

detecting a defect of said sample by using the image captured under said determined conditions for said

transmission ratio of said 0-th order diffracted light.

6. A method for detecting a defect according to claim 5, wherein said step of obtaining a plurality of images by changing the transmission ratio of said 0-th order diffracted light is performed for a plurality of regions on said sample, and a particular value of the transmission ratio of the 0-th order diffracted light with which a brightness-difference of the detected images among the plurality of regions of said sample is decreased is set as conditions for the transmission ratio of the 0-th order diffracted light that increase said defect detection sensitivity.

7. A method for detecting a defect according to claim 5, wherein said step of obtaining a plurality of images by changing the transmission ratio of said 0-th order diffracted light is performed for a plurality of regions on said sample, the images detected for the plurality of regions of said sample are subjected to second differentiation to sum up the secondary differential values in the images, and a particular value of the transmission ratio of the 0-th order diffracted light with which the summation of the secondary differential values is increased is set as conditions for the transmission ratio of the 0-th order diffracted light that increase said defect detection

sensitivity.

8. A method for detecting defects, comprising the steps of:

illuminating a sample by polarized light;

obtaining an image of said sample by imaging said illuminated sample;

adjusting polarization conditions of light generated by said illumination and reflected from said sample based upon contrast information of the obtained image of said sample;

obtaining the image of the sample under the adjusted polarization conditions by imaging said sample under the adjusted polarization conditions of said reflected light; and

detecting a defect of said sample by using the image of said sample obtained under said adjusted polarization conditions.

9. A method for detecting a defect according to claim 8, wherein the transmission ratio of the 0-th order diffracted light included in the reflected light from said sample is changed by adjusting the polarization conditions of the light reflected from said sample.

10. A method for detecting a defect according to claim 8, wherein contrast of the image obtained by

capturing said sample is adjusted by adjusting the polarization conditions of the light reflected from said sample.

11. An apparatus for detecting a defect, comprising:

a stage for loading a sample;

illuminating system which illuminates the sample loaded on said stage;

an optical control unit which controls a transmission ratio of light illuminated by said illuminating system and reflected regularly from said sample;

an imaging optical system which images an optical image of said sample illuminated by said illuminating system;

image detecting unit which detects the optical image imaged by said imaging optical system and outputting a digital image; and

a defect detecting section which detects a defect of said sample by using the digital image output from said image detecting unit.

12. An apparatus for detecting a defect according to claim 11, further comprising contrast calculating unit which calculates contrast of said digital image by processing the digital image output from said image

detecting unit.

13. An apparatus for detecting a defect, comprising:

a stage for loading a sample;

illuminating system which illuminates the sample loaded on said stage with polarized light;

polarization adjusting unit which adjusts polarization conditions of the light illuminated by said illuminating system and reflected from said sample;

imaging unit which imaging an image of said sample under the polarization conditions that are adjusted by said polarization adjusting unit; and

defect detecting section which detects defects of said sample by using the image captured by said imaging unit.

14. An apparatus for detecting a defect according to claim 13, wherein said polarization adjusting unit change a transmission ratio of 0-th order diffracted light included in entire light reflected from said sample by adjusting the polarization conditions of the light reflected from said sample.

15. An apparatus for detecting a defect according to claim 13, wherein said polarization adjusting unit adjusts contrast of the image that said imaging unit images from said sample by adjusting the polarization conditions of the

light reflected from said sample.